AMENDMENT TO THE CLAIMS:

The following claim set replaces all prior versions, and listings, of claims in the application:

1. (currently amended) A process for the carbonylation of a conjugated diene comprising: [[by]]

reacting [[the]] a conjugated diene with carbon monoxide and a hydroxyl group-containing compound in the presence of a palladium catalyst system in a reaction zone to produce a reaction mixture, said catalyst system comprising (a) a source of palladium cations, (b) a mono-, bi-or multidentate phosphine ligand, containing at least one phosphorus atom which is directly bound to two or three aliphatic carbon atoms, as process ligand to produce a palladium-phosphine ligand complex catalyst, and (c) a source of anions, said process ligand (b) containing the moiety shown in formula (1):

(I)

wherein A^1 and A^2 each represent an aliphatic carbon atom which can be connected to one or more aliphatic or aromatic carbon atoms or both A^1 and A^2 are part of an at least 5-membered ring including the phosphorus atom, and X represents an aliphatic or aromatic carbon atom which can be connected to one or more aliphatic or aromatic carbon atoms or X is part of an organic bridging group connecting another identically or differently substituted phosphorus atom, and said source of anions (c) containing a carboxylic acid, wherein ~~characterized in that~~

said process ligand is fed continuously or periodically into the process as ligand make-up at a temperature of 50°C or lower, and wherein
a second phosphine ligand different from said process ligand is fed continuously or periodically to the process as ligand make-up, wherein said second ligand is chosen such that its phosphonium salt is reversible under carbonylation conditions.

2. (original) A process as claimed in claim 1, wherein the ligand make-up is added to a reaction mixture containing at least a portion of the catalyst system.

3. (original) A process as claimed in claim 2, wherein said process is performed as a continuous process.

4. (previously presented) A process as claimed in claim 1, wherein said process further comprises separating reaction product from said reaction mixture to obtain a catalyst mixture containing at least a portion of said catalyst system and recycling at least a portion of said catalyst mixture to the reaction zone.

5. (original) A process as claimed in claim 3, wherein said process further comprises separating high boiling compounds and/or dead ligand from said catalyst mixture and recycling the mixture containing catalyst obtained in the high boiler purge/catalyst separation zone and/or obtained in the dead ligand/catalyst separation zone to the reaction zone.

6. (original) A process as claimed in claim 4, wherein said ligand make-up is added to said catalyst mixture prior to feeding said catalyst mixture to the reaction zone.

7. (original) A process as claimed in claim 5, wherein said ligand make-up is added to the mixture containing catalyst prior to feeding said mixture to the reaction zone.

8. (previously presented) A process according to claim 5, wherein said mixture containing catalyst is united with the catalyst mixture prior to feeding said catalyst mixture to the reaction zone resulting in a united catalyst mixture and said ligand make-up is added to said united catalyst mixture.

9. (previously presented) A process according to claim 1, wherein the concentration and degradation rate of the process ligand is monitored during the course of the carbonylation process and ligand make-up is added to the process in an amount that is equal to the amount of the consumed process ligand.

10. (cancelled)

11. (currently amended) A process as claimed in claim 1, wherein ~~claim 10, characterized in that~~ said second phosphine ligand contains at least one phosphorus atom which is connected to two aryl groups.

12. (currently amended) A process as claimed in ~~claim 10~~ claim 1, wherein said second phosphine ligand has less coordination strength to palladium than the process phosphine ligand.

13. (currently amended) A process as claimed in ~~claim 10~~ claim 1, wherein said second phosphine ligand is a triaryl phosphine or a bis(diarylphosphino) alkane.

14. (original) A process as claimed in claim 13, wherein said second phosphine ligand is selected from the group consisting of triphenyl phosphine, a substituted triphenylphosphine, a trinaphthylphosphine, a substituted trinaphthylphosphine or a bis (diphenylphosphino) alkane derivative having 2-8 carbons between the phosphorus atoms, straight or branched.

15. (previously presented) A process as claimed in ~~claim 10~~ claim 1, wherein said second phosphine ligand is fed to the process together with said ligand make-up.

16. (previously presented) A process as claimed in claim 1, wherein the process ligand is selected from the group consisting of 2,3-bis(9-phosphabicyclononyl)butane, 1,2-bis(9-phosphabicyclononyl)ethane, 1,2-bis (9-phosphabicyclononyl) propane, 1,2-bis (carboxymethyl)-1,2-bis(9-phosphabicyclononyl) ethane, 1,2-bis(hydroxymethylene)-1,2-bis(9-phosphabicyclononyl)ethane, 1,2- bis (methoxymethylene)-1,2-bis(9-phosphabicyclononyl)ethane, 1,2-bis(9- phosphabicyclononyl) cyclohexane, 1,2-bis(9-phosphabicyclononyl)benzene, 1,2- bis (9-phosphabicyclononyl)cyclopentane, 3,4-bis (9-phosphabicyclononyl)hexane, 2-bis (dicyclohexylphosphino)-3-(9-phosphabicyclononyl)butane, 1,2-dicyclohexyl-1,2-bis (9-phosphabicyclononyl)ethane and 1-cyclohexyl-1,2-bis(9-phosphabicyclononyl)ethane.

17. (previously presented) A process as claimed in claim 1, wherein the process ligand is added in an organic solvent for said process ligand selected from the group consisting of an alkanol, a C6-diester, or a mixture of two or more of these compounds.

18. (previously presented) A process as claimed in claim 1, wherein the conjugated diene is 1,3-butadiene.

19. (previously presented) A process as claimed in claim 1, wherein the hydroxy-group containing compound is methanol or ethanol.

20. (previously presented) A process as claimed in claim 1, wherein the carboxylic acid is selected from the group consisting of pivalic acid, monomethyladipate, 3-pentenoic acid, acetic acid or a mixture of two or more of these compounds.

21. (new) A process as claimed in claim 1, comprising adding the second phosphine ligand as make-up ligand to the process ligand prior to feeding of the process ligand to the reaction zone.